

Design and Performance Criteria for Mine Rescue Ensembles

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Project Goals

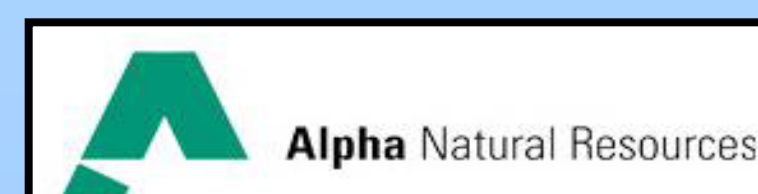
- Develop appropriate design and performance requirements for ensembles worn by mine rescue teams during emergency response
- Establish a best practice/guidance document and produce recommendations for standards for mine rescue ensembles

Background

- The Mine Improvement and New Emergency Response (MINER) Act was passed by Congress in 2006. Provisions of the MINER Act were intended to improve the mine rescue service.
- Historically, there has been no consistency in protective clothing and equipment worn by various mine rescue teams although they could respond to the same emergency.
- No guidance documents, standards or recommended best practices exist that establish minimum design and performance criteria.

Stakeholders

- Mine Rescue Teams
- United Mine Workers of America
- Mine Operators
- Ensemble Manufacturers / Material Suppliers
- Government Agencies



Partnerships



Fig 1. Mine Rescue Ensemble



Fig 2. 2009 Mine Rescue Training Exercise at the NIOSH Safety Research Coal Mine

Procedure

- Identify the specific hazards and use conditions related to mine rescue ensembles
- Investigate mine rescue team needs related to helmets, life line connectivity, SCBA, visibility, flammability resistance, gloves, garments, boots, and eye/face protection devices
- Identify current products and properties in use or that could be used
- Examine mine rescue protective clothing and equipment to identify existing limitations, gaps and best practices
- Select available test methods that can assess or measure critical properties (e.g. human factors and physical properties)
- Analyze the findings to determine if the selected test methods discriminate product performance consistent with field expectations
- Establish design and performance criteria for mine rescue ensembles that includes evaluation of the interoperability and integration of all protective clothing and equipment components

Disclaimer: The findings and conclusions in this poster have not been formally disseminated by the National Institute for Occupational Safety and Health and should not be construed to represent any agency determination or policy.

Significance

- As of February 2009, there were 415 mine rescue teams comprised of 3659 mine rescue team members. These teams are responsible for emergency response in 975 mines (coal, metal and non-metal) in the United States.
- Mine rescue team activities include: rescuing miners, providing first aid, erecting and extracting mine seals, underground and surface fire fighting, barricading, recovery, seismic locating, and responding to HAZMAT and surface disasters.
- This project has a strong Research to Practice (R2P) component and will utilize previous NIOSH research (e.g. firefighters) as a foundation.

Project Milestones and Timeline

Activity	Completion
Attend mine rescue team competitions	Q4 2010
Complete literature search/peer-review	Q4 2010
Obtain approval from HSRB	Q2 2011
Conduct testing and analyze data	Q4 2011
Prepare recommended criteria	Q1 2012
Project completion/Journal articles	Q4 2012

Expected Project Outputs / Outcomes

- Presentations at mining and PPE conferences
- Peer reviewed publications
- Produce best practice/guidance document for mine rescue ensembles
- Use of project outputs in the development of new standards for assessing mine rescue ensembles